

**ETCHING PROCESS INCLUDING PLASMA PRETREATMENT FOR  
GENERATING FLUORINE-FREE CARBON-CONTAINING POLYMER ON A  
PHOTORESIST PATTERN**

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**ABSTRACT OF THE DISCLOSURE**

An etching process including plasma pretreatment for generating a  
polymer layer formed of carbon on a photoresist pattern. The photoresist  
pattern is treated with plasma that does not contain fluorine radicals and that  
provides carbon radicals. An etching process is performed on an etching target  
layer by using the photoresist pattern as an etch mask.

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